ELECTRONIC THESIS AND DISSERTATION UNSYIAH

TITLE

OPTIMASI PELETAKAN KAPASITOR PADA SISTEM DISTRIBUSI 20 KV TEUNOM LAMNO PT PLN PERSERP MEULABOH DENGAN METODE KOMBINASI BACKWARD FORWARD SWEEP

ABSTRACT

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The 20 kV distribution system line of Teunom-Lamno PT. PLN Persero for Meulaboh area has a minimum voltage 19,93 kV and 151, 444 kW, 227 kVAR losses lines. This condition was caused by long line distance which is 108 Km. Losses lines and voltage drop Teunom â€“ Lamno distribution provoke poor power factor with voltage drop at load. This research aims to fix the condition of line power factor in order to optimize the shunt capacitors which were used to increase the voltage level of the load, reduce current flow, hence mitigate the line losses and improve the power factor of the load. To identify the power flow, voltage and power factor, the method used backward forward sweep method. Meanwhile, the capacitor size and location was determined by firefly algorithm method. The results of the optimization capacitor placement has reduced losses line for 20 kV distribution system Teunom-Lamno which is 131 kW and 191 kVAR with minimum voltage 19,98 kV.

Key words: capacitor, optimization, firefly algorithm, backward-forward sweep